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Best Management Practices For Colleges And Universities

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Institutional: Technology

Internet-Based Videoconferencing: Connect Globally to Build Locally

Summary: Communication is essential to everyone, especially to the Indiana University (IU) system who has campuses spread across 36,420 square miles. IU spends tons of resources a year to conduct meetings through the traditional tools of long-distance communication—telephone, email, websites—each have their strengths but represent a tradeoff: they provide a quick connection in place of the physical presence that may be used to resolve complex issues. Often, the costs associated with time and travel makes face-to-face interaction inefficient

That's when videoconferencing really makes sense. Besides providing the *feel* of a face-to-face meeting, videoconferencing over the Internet allows users to integrate other applications, such as Power Point, video, the Web, and the remote control of instruments. Videoconferencing over the Internet is a cost effective method for real-time information sharing on a global scale and the interactive collaboration necessary to manage environmental responsibilities among a multi-campus institution with facilities separated by significant distances. This Best Management Practice briefly describes the social and technical issues associated with three progressively complex cases and provides insight on how to steer the videoconferencing process to achieve appropriate goals. Tomas Beauchamp, Department of Environmental Health and Safety (DEHS) at IU, was essential in the procurement, development, and expansion of IU's *Virtual Workspace.*

Project Goals

Case 1: *Harmonize EHS-Office Operations Among The University's Main Campus and Seven Regional Campuses*
  ➢ Distribute knowledge and expertise from the main office primarily to the seven regional campuses
  ➢ Provide consistent information to all and resolve issues as a group
  ➢ Reduce expense associated with travel and time while <u>increasing</u> the level of staff interactivity

Case 2: *Institutional EHS Core Capacity Building*
  ➢ Increase staffs' understanding of environmental management systems (EMS) by learning from others with successful programs
  ➢ Develop a comparative understanding of environmental management and sustainable practices

Case 3: *Providing EHS Assistance to The Czech Republic*
  ➢ Establish a core group of strategically located North American universities connected to high-performance networks that would serve as participation hubs for EHS experts
  ➢ Respond to the needs of our Czech colleagues by adding/deleting "guest" experts (and their host locations if applicable) depending on priorities.

Campus Profile
Indiana University-Bloomington

The IU System: One residential campus, one urban campus, six regional campuses spread across 36,420 square miles.

IU's Indianapolis campus is the location of the Abilene Network Operations Center, an Internet2 high-performance backbone network.

Currently, there are more than 200 U.S. college and university members of Internet2. Other organizations with connectivity to the high-performance network infrastructure deployed by Internet2 members include research labs, hospitals, government agencies, and K-12 schools. Internet2 and its members work closely with federal research agencies to develop and deploy advanced networking.

Description

The Internet2 is a consortium led by U.S. colleges and universities that provides the high-performance network dedicated to research and education that makes business-quality videoconferencing over the Internet possible for American users. Worldwide, there are thousands of organizations connected to many Internet2-Partner networks. During the infancy of Internet-based videoconferencing, the Office of the Vice President for Information Technology at Indiana University provided funding to develop a videoconferencing environment, the *Virtual Workspace*, for the University Office of Environmental Health and Safety Management. The DEHS tested this communication tool in applied-work situations and evaluated its effectiveness. The following are examples of the capabilities of Internet2.

Case 1: *Harmonize EHS-Office Operations Among The University's Main and Seven Other Campuses*   To ensure that all EHS offices at IU campuses operate as a system-wide team, the staff at DEHS, specifically Tomas Beauchamp, provided a mode for all EHS offices to interact with each other (some for the very first time), to receive formal training, and to share necessary information. Initially, videoconferences were conducted on a monthly basis. It took a few conferences for staff to address outstanding priorities. After each conference, telephone calls and emails between the main campus and regional campuses increased as staff followed up on issues and information requests. Later, it became apparent that the offices had reached a plateau and that routine work didn't necessarily require the use of videoconferencing; the frequency of conferences decreased. However, equally apparent were the benefits that videoconferencing provided when complex situations presented themselves, for example, post-9/11 issues on campus, and the constant change of environmental regulations. During times like these, larger videoconferencing rooms were used and people with many different roles within the university system were invited to participate in discussions and resolve different issues quickly. One example was hiring a consultant to provide services to several campuses simultaneously. This not only saved the University resources, but also enabled the University to provide the information to as many people as needed at one time. Another example brings videoconferencing outside Indiana's borders and clear across to New England. The staff at DEHS transferred the capabilities of the *Virtual Workspace* to New England colleges and universities in which six institutions (all Internet2 members) participated representing all six New England states. Over 75 EHS staff were able to attend this video-conference.

Case 2: *Institutional EHS Core Capacity Building.* In order to gain a better understanding of the environmental management systems (EMS) concepts and sustainable, the staff at DEHS used a second round of funding to connect IU with external experts on EMSs and sustainable campuses from Boston University (BU), the Universiteit van Amsterdam (UvA) and the Katholieke Universiteit Nijmegan (KUN), the latter universities from the Netherlands. There were several reasons for choosing to network with the Dutch universities. Most important was their level and sophistication of achievement: the Netherlands has a national policy on sustainable development; in the 1970s, Dutch universities began sustainable management and education practices; in the early 1990s, legislation prompted the universities to strengthen their occupational health and safety (OHS) performance and to integrate OHS with environmental management activities; and in 1999, UvA established an internal network of all education activities related to environmental issues and sustainable development.

IU worked with three co-investigators from BU, UvA, and KUN to develop an Action Plan. An Action Plan was designed to address what was perceived as three layers of environmental management at institutions of higher education: staff/programs, management/systems, and administration/policy. A pervasive thread that ran through the conferences was the examination of how and why all of these layers integrated (or did not) with each other. A key component of the Action Plan was to tie in our project with IU's applied (actual) work responsibilities. A total of nine videoconferences were held.

Although American and Dutch environmental laws are different, participants benefited from discussing similar and dissimilar challenges and opportunities and responses to them. The Dutch highlighted the importance of integrating the three environmental management layers—programs, systems, policy—and that fit well with our understanding of the EMS.

Case 3: *Providing EHS Assistance to The Czech Republic*. The staff at DEHS, specifically Tomas Beauchamp, received a request from the American Industrial Hygienist Association to help provide EHS technical assistance to the Czech Republic, which had just experienced a 1,000-year flood. Experts from several North American universities wished to participate. I provided the forum and the opportunity for experts in related fields to provide the Czech Republic the assistance they needed. What makes this case unique is that it involved a core group of North American and Czech participants that established a *dynamic virtual community that continually changed to meet the priorities of our Czech colleagues*, a concept called "switching." The outcome of our first videoconference included the identification of several priorities by the Czechs and an understanding of the types of resources that the North Americans had to offer. Subsequently, a short list of priorities served as focus points for our next three conferences.

Toward the end of each conference we identified additional helpful resources—SOPs, guidelines, web-based training, personal contacts—and North American participants delivered the resources using traditional communication methods.

Pre-Project Considerations

➢ What are everyone's expectations and goals?
➢ Is videoconferencing really necessary to achieve goals?
➢ How will we track progress and measure outcomes?
➢ Are all locations connected to a high-performance network?
➢ Are there any technical, scheduling, or language issues?
➢ Who will handle logistics?

> *Note:* Be proactive by communicating among technical support people, as well as among content people, at all participating locations.

Steps Taken – 3 Cases

Case 1: *Harmonize EHS-Office Operations Among The University's Main and Seven Other Campuses.*
During the implementation of the *Virtual Workspace,* the staff at DEHS:
▪ met with staff participants physically from the regional campuses to further identify their needs and expectations,
▪ demonstrated how to use the equipment, and
▪ initiated communication between participants and their campus IT-support office.

Tomas anticipated a higher degree of techno-phobia among staff, but the equipment was easy to use. It's important to note that faculty and staff at all IU campuses have free access to videoconferencing facilities and the technical support staff. However, the DEHS bought personal equipment (compatible with a PC) for each of the regional offices in order to circumvent some of the "first-come-first-served" scheduling of IU's free facilities and to promote spontaneous use of videoconferencing in addition to our periodically scheduled formal conferences through grant funding. During scheduled conferences staff often used a combination of personal equipment and IU's room-sized facilities depending on the participation load at each campus.

Case 2: *Institutional EHS Core Capacity Building.* SURFnet, Internet2's Dutch partner network, was very accommodating and helpful. However, ensuring adequate and timely communication among technical support persons at all locations required a designated coordinator. Each of us took turns chairing the content portion of the conferences. Many Dutch speak excellent English, so except for taking a few seconds here and there to come up with the correct English word, language was not an issue. After a few conferences we really began to loosen up and communicate as if we were in the same room. We integrated some basic applications—Power Point, document cameras, and VHS—which was fairly easy to do and helped each of us to illustrate the relationship of our EHS Office within our institution's organizational structure as well as the extent that EHS roles and processes integrate with the overall mission of our institution. The entire schedule for the nine videoconferences were confirmed with the videoconferencing scheduling offices at each location before starting, which eased future logistical demands.

Case 3: *Providing EHS Assistance to The Czech Republic*. In order to bring together the correct mix of experts for each conference, the North American core component switched some of the previous experts (and their non-core host locations if applicable) with new experts, often participating from new host locations. In turn, the Czech core component identified

Czech experts for each priority and invited them to their central videoconferencing location in Prague, the capital. Almost all the universities provided us with videoconferencing facilities for free, or at a low cost, for one or more reasons: they identified with our social service element, a participant was a faculty/staff member at their institution, and as members of Internet2 the project connected with their Information Technology Mission. Scheduling over five time zones was tricky: use a 24-hour clock, be proactive, and remember that seasonal time changes occur on different dates in other countries. There were some language issues, but many Czechs speak English and universities are excellent places to find translators. Having a native speaker on hand proved a good method to build relationships.

Participants

Case 1: Staff of Indiana University, Office of Environmental, Health, and Safety Management from the main office and seven other offices, and, at times, IU administrators and non-IU persons.

Case 2: Core Participants--Betty de Keizer (Environmental/Sustainability Coordinator, Universitiet van Amsterdam), Carlo Buise (EHS Manager, Katholieke Universiteit Nijmegen), Peter Schneider (Director, Office of Environmental Health & Safety, Boston University), Tomas Beauchamp (Principal Investigator & EHS Specialist, Indiana University). Other participants included students, faculty, staff, and upper-level administrators from the four universities, as well as members of the Campus Consortium for Environmental Excellence.

Case 3: Core Participating Organizations: American Industrial Hygienist Association-International Affairs Committee, Charles University (Prague), University of Manitoba, Colorado State University, Boston University, Indiana University. Other Participating Organizations: **United States**: US Environmental Protection Agency (EPA), EPA New England, National Institute of Occupational Safety & Health, American Council of Industrial Hygienists, Massachusetts Dept. of Public Health, Georgetown University, University of Cincinnati, Campus Consortium for Environmental Excellence. **Canada**: Toronto Public Health, York University, Royal B.C. Museum, University of Victoria, Carleton University. **Czech Republic**: Ministries of Health, Environment, and Agriculture, the National Institute of Public Health, National Library, State Central Archives, and the City of Prague.

Tools Used

1. Personal Video Communication System (left)

2. View Station for Group Video Conferencing (on TV)

Figure 1

Figure 2

Performance and Benefits

Case 1: We used a mix of grant-purchased personal equipment, optional equipment purchased from our Office's budget, and IU's free videoconferencing facilities/equipment and technical support. With an educational discount, equipment suited for personal use costs about $500, Figure1. The EHS Director opted to purchase equipment suited for the conference room, typical costs range between $3,000-$5,000+, Figure 2. Also, staff had access to several of IU's free facilities. The entire IU EHS staff—who are scattered across 36,420 square miles—met in "one place," discussed and solved issues, spent only an hour to do so, and incurred no necessary direct costs, assumed use of IU's free facilities and equipment only. After learning about the *Virtual Workspace*, several upper-level administrators started using videoconferencing to conduct their business with regional campuses. This effort began in the infancy of videoconferencing over the Internet and, without the IT background, staff may require a lot of deep-thinking time to get started. The grant funding offset much of this indirect cost.

Case 2: Boston University charged $50 to their EHS Office for each conference. The Dutch universities have excellent videoconferencing facilities, but at the time access was relatively limited compared to IU and BU, which created a potential availability problem. Consequently, IU used grant funding to buy equipment for the Dutch participants. Unexpected benefits included the opportunity developed by Ms. de Keizer to conference with the EHS heads from all Dutch Universities during one event. At the end of our project we concluded that the outcomes of our effort were a bit abstract—oriented more toward policy formulation than application. It was harder than we initially thought to integrate our project work with our actual work responsibilities. We determined that any future effort should include a concrete goal tied to a specific task with easily measured outcomes—and more involvement from upper-level decision makers.

Case 3: Two Canadian universities charged a nominal fee of $125 and Boston University incurred a nominal fee for two conferences. Andrew Cutz, Past Chair of the American Industrial Hygienist Association-International Affairs Committee, and the DEHS staff, specifically Tomas Beauchamp, shared equally in assuming the indirect costs (time) required to interact with so many different locations and people. The Czech representatives appreciated the efforts and benefited significantly through the information exchange made available through this *Virtual Workspace*. A final, unexpected, outcome was that the project fostered new professional and personal relationships.

Lessons Learned

- ➤ Remember: Understand each other's goals and expectations. Goals can be concrete or abstract.
- ➤ Develop a method to track progress and measure outcomes.
- ➤ Designate a coordinator to handle logistics and facilitate communication between technical support persons and between users (EHS experts). A technical background is not necessary but good management skills are.
- ➤ Remember that videoconferencing is only a tool and not an end to your work.

For Further Information

The Videoconferencing Cookbook, by the Video Development Initiative, is a fantastic resource on videoconferencing for beginners and experts.
http://www.videnet.gatech.edu/cookbook//

The Internet2 site: http://www.internet2.edu/.
    College/University members:
    http://members.internet2.edu/university/universities.cfm
    Other connected U.S. organizations: http://k20.internet2.edu/segp/survey/index.html
    Internet2 International Partners: http://international.internet2.edu/
    Internet2 Detective—information about your network connection: http://detective.internet2.edu/
    Internet2 Commons subscription service: http://commons.internet2.edu/h323/prime.html
    Contact Internet2: http://www.internet2.edu/contact.html

A helpful resource for working with other time zones: http://www.timeanddate.com/time/

Financial Info

Projected Initial Costs:
*See explanation
True Costs: *~$800.
Funding Sources:
Internal IU Grants
   1. $18,400
   2. $20,000
Other Project Costs:
Lots of time!
Explanation:
*Almost without exception all the institutions involved in the three projects/cases provided the necessary equipment and technical support for free. During projects 2 & 3 three universities charged small fees for the use of their facilities, which amounted to $800, for a total of 13 "units" about $61.50 per videoconference. These were the only true <u>necessary direct</u> costs. However, since IU provided additional funding to DEHS for the first two projects, the money was used to pay for additional equipment, student workers, and travel that truly added value to the projects. Also, additional equipment was purchased by the EHS director.

Other Successful Programs

See Internet2, specifically: Digital Video, Health Sciences, and Bioscience: http://www.internet2.edu/info/
The Missouri Life Science forum: http://lifesciencesweek.missouri.edu/
The UChicago "ABC Testbed" (Advanced Biomedical Collaboration) project: http://cci.uchicago.edu/abc
SARS article, effort uses Access Grid technology: http://www.anl.gov/OPA/logos21-2/grid.htm
Project TOUCH (Telehealth Outreach for Unified Community Health):   http://hsc.unm.edu/touch/
SCI (Scientific Imaging and Computing Institute) at the University of Utah: http://www.sci.utah.edu/

Commentary

Many institutions of higher education in the U.S. and abroad are very generous with providing use of their videoconferencing resources. However, IU is aware that some colleges and universities may not have the ability to offer these resources for free. Even so, IU believes that in many cases videoconferencing can save time and money for EHS users and add value to their work. Furthermore, now that the technology is more commonplace than when I began to use it there is much more information available to help new users get started.